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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/825,338      | 04/15/2004  | Gordon A. Tibbitts   | 37163.18            | 8661             |

27683 7590 04/21/2006

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| EXAMINER |
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TSAY, FRANK

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| ART UNIT | PAPER NUMBER |
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3672

DATE MAILED: 04/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/825,338

Applicant(s)

TIBBITTS ET AL.

Examiner

Frank S. Tsay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-76 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-76 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☐ Notice of References Cited (PTO-892)
- ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/10/05-2/21/06
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 15, 16 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Curlett et al (US 6,386,300).

The method of flowing solid material impactors into drill bit is met by Figs 1-4 and the abstract, and col. 12, lines 39+, where the introducing of impactors into the drill fluid and through drill bit nozzles to impact the formation is clearly taught. The cavity within the drill bit is anticipated by the fact that cavity is known to exist in the nozzles. The flowing of the solid material impactors at an angle is clearly shown in Fig. 3, where the impactor contact the formation at an angle to the drill bit axis.

Claims 1-3, 13-19, 24-26, 36-40, 45-47, 56-61, 66, and 71-76 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al (US 4,534,427). The claimed center nozzle and the side arm nozzles are met by nozzles 123 shown in fig. 3, where the nozzles are located in the center as well as in the side peripheral. The claimed side arm fails to distinguish from the side peripheral of bit shown in figs 2-4. The solid material impactors are anticipated by solid abrasive material taught in Wang et al, since

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such serves to impact the formation as well. The mechanical breaker surface is anticipated by cutter 125.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14, 17-19, 21-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curlett et al'300 in view of Curlett (US 5,862,871).

Curlett et al teaches everything with the exception of the specific type of drill bit comprising side arms and or rock cutting and breaking structure. In this regard Curlett teaches a vortex jet drilling which comprising sides arms 53a, 53b, having nozzles 160a, 160 b and center nozzles 160c therein. Mechanical cutters 372 and 120a on the exterior surface and the center portion of the drill bit is also clearly shown in Figs 5, and 11. The gage cutting elements is also shown in the roller cutter 120a. The cavity for accelerating the drilling fluid is clearly exemplified in Fig. 4. The breaker surface fails to distinguish from the cutting teeth of the rolling cone cutter. It would have been obvious to one of the ordinary skill in the art to have modified Curlett '871 vortex jet drill by using the solid material impactors of Curlett et al '200, so that the efficient of the vortex jet can be improved, since both involve the use of jet nozzles as means for drilling fluid injection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank S. Tsay whose telephone number is (571) 272-7038. The examiner can normally be reached on Monday thru Friday, 7:30am-5:00 pm, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on (571)272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Frank S Tsay  
Primary Examiner  
Art Unit 3672

4/18/06